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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/219,857	12/23/1998	TATSUJI HIGUCHI	981491	4231

23850 7590 02/14/2003

ARMSTRONG, WESTERMAN & HATTORI, LLP
1725 K STREET, NW
SUITE 1000
WASHINGTON, DC 20006

EXAMINER

ROSENDALE, MATTHEW L

ART UNIT PAPER NUMBER

2612

DATE MAILED: 02/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/219,857

Applicant(s)

HIGUCHI ET AL.

Examiner

Matthew L Rosendale

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 1998 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 6) ☐ Other: ____

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Electronic Camera Compact Optical System.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 4 – 8, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohyoshi in view of Toyofuku et al.

Referring to claim 1, Ohyoshi discloses an electronic image pickup apparatus in figure 7, comprising a taking lens 28 comprising a plurality of lens 28a and 28b, an image pickup device 21, a recording means being a memory card not shown in figure 7 for recording the image captured by the image pickup device 21 mounted on a circuit board 22, and an optical axis alteration means 29 disposed in between the taking lenses 28a and 28b for altering the direction of the optical axis. The taking lens 28a of Ohyoshi is disposed on the opposite side of the camera to an image display device 5 in figure 4 located on the back surface of the camera body.

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Ohyoshi does not however show the image taking lens in front of the image display unit on the opposite side of the camera body. However, this configuration is well known as taught by Toyofuku. Figures 1 – 3 of Toyofuku shows an image taking lens 12f in figure 2 located in front of an image display 18 on the opposite side of the camera body. Therefore it would have been obvious to use the configuration of Toyofuku with the compact optical system of Ohyoshi because placing the optical system of Ohyoshi in front of the image display opposed to on the side, would result in a smaller camera body opposed to having a long and bulky camera body as shown by Ohyoshi.

2. Referring to claim 4, Ohyoshi discloses a taking lens 28a being plumb in posture to an image pickup device 21 mounted on a circuit board 22 disposed at the bottom of the apparatus body at the time of a customary taking of an image shown in figure 7.

3. Referring to claim 5, Ohyoshi discloses an electronic circuit board 22 for mounting the image pickup device 21 for processing the image captured by the pickup device where the circuit board 21 is located between the image pickup device and the bottom surface of the apparatus body 22 as shown in figure 7.

4. Referring to claim 6, Ohyoshi discloses a taking lens 28a in figure 7 disposed in the apparatus body such that the optical axis to be altered by the optical axis altering means 29 is horizontal to the apparatus body at the customary time of image taking.

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5. Referring to claim 7, Ohyoshi discloses a circuit board 22 for mounting an image pickup device 21 and processing the signal from the pickup device is located at the bottom of the apparatus body disposed between the taking lens using 28a and the image display element 5 in figure 4.

Ohyoshi does not however show the image taking system in front of the image display unit on the opposite side of the camera body. However, this configuration is well known as taught by Toyofuku. Figures 1 – 3 of Toyofuku shows an image taking lens 12f in figure 2 located in front of an image display 18 on the opposite side of the camera body. Therefore it would have been obvious to use the configuration of Toyofuku with the compact optical system of Ohyoshi because placing the optical system of Ohyoshi in front of the image display opposed to on the side, would result in a smaller camera body opposed to having a long and bulky camera body as shown by Ohyoshi.

6. Referring to claim 8, Ohyoshi discloses a circuit board 21 for mounting an image pickup device and processing the signal from the pickup device is located at the bottom of the apparatus body disposed between the taking lens using 28a and the image display element 5 in figure 4.

7. Referring to claim 14, Ohyoshi does not specifically disclose that the reflecting mirror 29 in figure 7 has an IR cut film vapor deposited on the reflective surface. However, Official Notice is taken that using IR cut films on optical elements in an electronic image capture system is well known because infrared light can damage sensitive components of the image sensor. Therefore it would have been obvious to provide the IR cut film on the mirror because installing

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an extra optical element with IR filtering properties would increase the overall size of the optical system, which is not desirable in a compact camera.

8. Claims 9 – 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohyoshi in view of Toyofuku et al in further view of Wakabayashi.

Referring to claim 9, Ohyoshi discloses a protrusion 27d surrounding the taking lens 28a in figure 7 but the protrusion of Ohyoshi does not protrude beyond the peak of the central part of the lens to provide a means for shielding the lens from unwanted light.

However, Wakabayashi discloses a taking lens 11 disposed in a recess surrounded by the protruding edges of the camera body on three sides, and the protruding edge of the lens cover 10 on the remaining side. Having such a configuration would result in a hood around the lens cutting unwanted external light in the vicinity of the taking lens. Therefore it would have been obvious to position the taking lens of Ohyoshi in such a manner that the protruding sides of the camera body would extend beyond the taking lens shielding it from unwanted light reducing lens flare. Also refer to the rejection of claim 1.

9. Referring to claim 10, Ohyoshi discloses a protrusion 27d surrounding the taking lens 28a in figure 7 but does not disclose that the protrusion comprises an edge portion of a lens cover that is displaceable between a position for concealing the lens and a position for opening the same.

However, this feature is well known as taught by Wakabayashi. Figure 3 of Wakabayashi shows an image taking lens 11 and an edge portion of a lens cover 10 disposed in front of the image taking lens for opening as shown in figure 3 and for concealing the lens as

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shown in figure 6 to protect it. Therefore it would have been obvious to provide the lens cover of Wakabayashi with the image capture system of Ohyoshi to provide protection for the lens from scratches and other damages but also because the protruding edge of the cover would provide shielding from unwanted light around the taking lens reducing the effects of lens flare.

10. Referring to claim 11, Ohyoshi discloses a protrusion 27d surrounding the taking lens 28a in figure 7 but does not disclose that the protrusion comprises an edge portion of a lens cover that is displaceable between a position for concealing the lens and a position for opening the same.

However, this feature is well known as taught by Wakabayashi. Figure 3 of Wakabayashi shows an image taking lens 11 and an edge portion of a lens cover 10 disposed in front of the image taking lens for opening as shown in figure 3 and for concealing the lens as shown in figure 6 to protect it. Therefore it would have been obvious to provide the lens cover of Wakabayashi with the image capture system of Ohyoshi to provide protection for the lens from scratches and other damages but also because the protruding edge of the cover would provide shielding from unwanted light around the taking lens reducing the effects of lens flare.

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohyoshi in view of Tokofuku in further view of Kikuchi.

Referring to claim 13, Ohyoshi discloses an image sensor 21 mounted to a circuit board 22 attached to the base of the camera body. Ohyoshi does not disclose a means of moving the image sensor along the optical axis. However, Kikuchi discloses that moving an image sensor along an optical axis using a linear motor is a well known method of auto focus (Col. 13, Lines

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60 – 67). Therefore it would have been obvious to provide a means of moving the image sensor of Ohyoshi along the optical axis as taught by Kikuchi to properly focus the image incident upon the sensor. Also refer to the rejection of claim 1.

12. Claims 2, 3, 12, and 15 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohyoshi in view of Toyofuku et al in further view of Orbach et al.

Referring to claim 2, Ohyoshi discloses a hole 25a to adjust quantity of light passing through the taking lens unit 28a provided between the optical axis alteration means 29 and the image pickup unit 21. The hole 25a of Ohyoshi does not mechanically adjust the quantity of light; instead it only permits a fixed quantity of light to pass through. However, a mechanical iris is well known as taught by Orbach. Figure 3 of Orbach shows an iris 38 whose size is mechanically adjusted by the motor 42 disposed on the side of the optical system (Col. 3, Lines 51 – 68). The iris of Orbach is used to control the amount of object light passed through to the image sensor. Therefore it would have been obvious to provide a means of adjusting the quantity of light provided to the image sensor to insure a properly captured image with the correct amount of brightness. Also refer to the rejection of claim 1.

13. Referring to claim 3, Ohyoshi discloses a fixed focus lens system 23 and does not provide a lens displacing mechanism for displaying a focus lens in the direction of the optical axis between the optical axis alteration means and the image pickup device.

However, Orbach discloses a focus lens 44 located in between an optical axis alteration means 24 and an image pickup device 32. The focus lens 44 is manually moved along the

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optical axis guided by a pin 70 to an in focus position when the user operated a focus button 50 (Col. 4, Lines 1 – 13). Therefore it would have been obvious to provide the drive source and focus system of Orbach with the compact optical system of Ohyoshi to provide a means of properly focusing an image to be captured. Also refer to the rejection of claim 1.

14. Referring to claim 12, Ohyoshi discloses a focusing lens system but does not disclose a displacing mechanism on the lateral side of the taking lens unit for moving the focus lens to a point where the object image is in focus. However, Orbach discloses a driving source disposed on the lateral side of a taking lens 12 in figure 3 being a guide pin 70 and operation button 50 for moving a focus lens 44 to an in focus position when the user operates the coupling button 50 (Col. 4, Lines 1 – 13).

15. Referring to claim 15, Ohyoshi does not disclose that the optical axis alteration means is a beam splitter for reflecting object light from the taking lens to an image pickup element and allowing object light to pass through to an optical viewfinder.

However, Orbach shows an image capture configuration in figure 3 having a taking lens unit 12 opposing an optical viewfinding window 28 where object light is passed straight through a beam splitter 24 directly to the viewer's eye. Therefore it would have been obvious to provide the optical viewfinder of Orbach with the image capture system of Ohyoshi and to replace the mirror 29 of Ohyoshi with the beam splitter 24 of Orbach to allow object light to pass straight from the image taking lens to the viewer's eye along with reflecting light to the image pickup unit because

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optical viewfinder systems require no power to operate and would save battery power opposed to an LCD giving the camera a longer operation time. Also refer to the rejection of claim 1.

16. Referring to claim 16, Ohyoshi does not disclose that the optical axis alteration means is a beam splitter for reflecting object light from the taking lens to an image pickup element and allowing object light to pass through to an optical viewfinder.

However, Orbach shows an image capture configuration in figure 3 having a taking lens unit 12 opposing an optical viewfinding window 28 where object light is passed straight through a beam splitter 24 directly to the viewer's eye. Therefore it would have been obvious to provide the optical viewfinder of Orbach with the image capture system of Ohyoshi and to replace the mirror 29 of Ohyoshi with the beam splitter 24 of Orbach to allow object light to pass straight from the image taking lens to the viewer's eye along with reflecting light to the image pickup unit because optical viewfinder systems require no power to operate and would save battery power opposed to an LCD giving the camera a longer operation time. Also refer to the rejection of claim 6.

17. Referring to claim 17, Ohyoshi discloses an optical axis alteration means 29 that is rotatable between a first position directing object light from an image taking lens 28a to an image pickup device mounted on circuit board 21 and a second position but does not disclose that the second position is retracting itself from the path of object light from the image taking lens 28a allowing object light to pass through to an optical viewfinder. In addition, Ohyoshi does not disclose an optical viewfinder disposed on the opposite side of the camera body opposing a taking lens.

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However, Orbach shows an image capture configuration in figure 3 having a taking lens unit 12 opposing an optical viewfinding window 28 where object light is passed straight through a beam splitter 24 directly to the viewer's eye. Therefore it would have been obvious to provide the optical viewfinder of Orbach with the image capture system of Ohyoshi and to modify the second rotatable position of Ohyoshi to allow object light to pass straight from the image taking lens to the viewer's eye because optical viewfinder systems require no power to operate and would save battery power giving the camera a longer operation time. Also refer to the rejection of claim 1.

18. Referring to claim 18, Ohyoshi discloses an optical axis alteration means 29 that is rotatable between a first position directing object light from an image taking lens 28a to an image pickup device mounted on circuit board 21 and a second position but does not disclose that the second position is retracting itself from the path of object light from the image taking lens 28a allowing object light to pass through to an optical viewfinder. In addition, Ohyoshi does not disclose an optical viewfinder disposed on the opposite side of the camera body opposing a taking lens.

However, Orbach shows an image capture configuration in figure 3 having a taking lens unit 12 opposing an optical viewfinding window 28 where object light is passed straight through a beam splitter 24 directly to the viewer's eye. Therefore it would have been obvious to provide the optical viewfinder of Orbach with the image capture system of Ohyoshi and to modify the second rotatable position of Ohyoshi to allow object light to pass straight from the image taking lens to the viewer's eye because optical viewfinder systems require no power to operate and

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would save battery power giving the camera a longer operation time. Also refer to the rejection of claim 6.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew L Rosendale whose telephone number is (703) 305-4909. The examiner can normally be reached on Monday - Thursday 8: 00am-6: 00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to customer service whose telephone number is (703) 306-0377.

MLR
February 10, 2003


WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600